REMARKS

Claims 1-111 are pending after entry of this paper. Claims 2-65, 80-83 and 109 remain rejected. Claims 67-79 and 84-108 have been withdrawn. Applicants reserve the right to pursue withdrawn claims in a divisional or continuing application. As a reminder, the instant application is a national stage application submitted under 35 U.S.C. § 371. In a telephonic election on August 13, 1999, applicants' representative elected with traverse, Group I to claims 1-66 and 80-83. The claims of Groups II and III are directed to methods of producing and using the elected compositions having neutral and/or alkaline cellulase activity. As the Examiner is well aware, under 35 U.S.C. §372 a lack of unity of invention requires that there be no single general inventive concept. However, at the very least, Groups II (Claims 67-72) and III (Claims 73-79) should be examined and/or rejoined in view of the single general inventive concept, *i.e.*, neutral and/or alkaline cellulase.

Applicants acknowledge that the amendments to claims 2 and 4 have been entered to recite "isolating a cellulase having neutral and/or alkaline activity from the wild-type or mutant fungus" as stated in the Advisory Action Summary.

Claims 110 and 111 have been added and are supported throughout the instant specification, for example, page 7 lines 5-10.

Applicants acknowledge the allowance of claim 1. In addition, applicants acknowledge that claim 66 has been objected to for being dependent from a rejected claim, but may be allowable if rewritten in the independent form.

Reconsideration and withdrawal of the pending rejections in view of the below remarks are respectfully requested.

Withdrawn Rejections

Applicants acknowledge that the rejection under 35 U.S.C. §112, second paragraph for alleged indefiniteness to Claims 2-23 and 109 has been withdrawn in view of the prior submitted response dated May 28, 2008.

Response to Rejections under 35 U.S.C. §103

Claims 2-4, 6-65, 80-83 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Parslow, et al. (U.S. Patent No. 4,661,289) in view of Janeckova, et al. (*Ceska Mykologie* 31(4):206-213, 1977). According to the Examiner, Parslow allegedly teaches compositions comprising fungal cellulases useful for cleaning and softening natural and synthetic fibers while demonstrating the advantages of using neutral/alkaline cellulases for better wash performance within a wider pH range. The Examiner admits that Parslow does not teach the claimed composition comprising fungal cellulase from the genus *Chrysosporium*, in particular *Chrysosporium lucknowense*. The Examiner has combined Parslow with Janeckova that allegedly teaches *Chrysosporium lucknowense* from soil. To support the case of *prima facie* obviousness, the Examiner points to MPEP 2143 which states: "Simple substitution of one known element for another to obtain predictable results." The Examiner contends that the claimed invention would have been within the ordinary skill in the art to make and use at the time the application was filed and was as a whole *prima facie* obvious. Applicants respectfully disagree.

The inventive cellulase compositions are unique in that they have neutral or alkaline cellulase activity, which is an unexpected and surprising property of a fungal cellulase at the effective filing date of the instant application. Applicants have therefore specifically referred to the inventive enzyme compositions as "neutral and/or alkaline cellulases" in the specification (page 1 line 5; page 5 line 2), in order to accurately represent the inventive aspect of these compositions. In fact, applicants' usage of the term refers to the novel, and previously undetected, neutral or alkaline cellulase activity of *Chrysosporium* cellulase compositions. This neutral or alkaline activity is novel, useful, and non-obvious. Applicants respectfully direct the Examiner's attention to the presence of significant cellulase activity at pH 6-9 and 7-9 in the pH-activity profiles of enzyme fractions II and III (paragraph following Table 21). Whereas, when compared to the profile of typical fungal acid cellulases from *Aspergillus*, *Trichoderma*, and *Penicillium*, as shown in USPN: 3,844,890, Figure 4, no significant activity exists above pH 7.

The Examiner has combined Parslow with Janeckova to support the case of *prima facie* obviousness based on the MPEP 2143 statement: "Simple substitution of one known element for another to obtain predictable results." Applicants assert that Janeckova merely

reports the existence of *Chrysosporium lucknowense* as isolated from soil samples, in addition to 36 other species from a total of 14 genera. Janeckova does not describe or characterize any of the species except to indicate that the soil samples were collected from the Himalayas for mycologic examination. Having read Janeckova, the skilled artisan would not conclude that *Chrysosporium* is different in any way from other fungal cellulases. As a reminder, USPN: 3,844,890 states: "...cellulases originating from animals and fungi, have optimum pH of from 5.0 to 6.0, and cellulases originating from bacteria belonging to the genus Pseudomonas or the like have optimum pH approximately 7.0." (column 1 lines 11-15). In view of the `890 patent, one of ordinary skill in the art could only assume that a *Chrysosporium* cellulase would be a typical fungal cellulase, i.e., having an optimum pH of 5.0 to 6.0, and would have little activity above a pH of about 7.0, as shown for the *Aspergillus*, *Trichoderma*, and *Penicillium* cellulases in the graph of Figure 4. Janeckova does not disclose the contrary, and the pH-activity profile of the *Chrysosporium* cellulase is entirely unexpected. Parslow merely mentions that *Humicola insolens*, *Bacillus*, or *Aeromonas* produce alkaline cellulases. The combination of Parslow and Janeckova does not result in the claimed invention by the simple substitution of one known element for another. The `890 patent discloses what was commonly known and understood in the art, *i.e.*, that fungal cellulases have maximal activity at an acidic pH. Parslow does not even mention the claimed *Chrysosporium* cellulase, and only provides *Humicola*, *Bacillus*, or *Aeormonas* as examples of producing alkaline cellulases. However, the skilled artisan would not be able to simply substitute the fungal cellulase of Parslow with one of the possible fourteen genera having 37 species disclosed in Janeckova. There is no guidance or teaching as to which of the possible 37 species of fungi, if any, would have cellulase activity at a pH that is neutral or alkaline and not acidic.

In view of the teachings of Parslow and Janeckova, one of ordinary skill would not find it obvious to investigate the fungal cellulases produced by any one of those listed in Janeckova for neutral or alkaline cellulase activity. Rather, one would be directed by Parslow to investigate the bacteria *Bacillus* and *Aeromonas*, or directed to the fungal genus *Humicola*. The optimum pHs of the *Chrysosporium* cellulases of the claimed invention were not known prior to the earliest disclosure of the instant invention. In fact, the superior performance, at neutral and/or alkaline pH, of *Chrysosporium* cellulases in the instant disclosure (see, e.g., Tables 13 and 14 at pp 40-42 and 45) is clearly an unexpected result. In the absence of the instant disclosure,

one of ordinary skill could only assume that *Chrysosporium* cellulases would, as suggested by the `890 patent, be typical fungal acidic cellulases.

Applicants respectfully submit that the evidence clearly supports a conclusion that neutral or alkaline compositions, which comprise a *Chrysosporium* cellulase, are not obvious in view of the prior art. Moreover, *Chrysosporium* cellulases are not obvious components of such alkali-tolerant compositions. For the same reasons as above, and in particular, in view of the teachings of the prior art, one of ordinary skill would expect *Chrysosporium* cellulases to be typical acid cellulases, having the pH activity profile disclosed in Fig. 4 of US 3,844,890. One of ordinary skill in the art would not expect *Chrysosporium* cellulases to retain activity across the industrially useful pH range of 5.5 to 8.0. The performance of a *Chrysosporium* cellulase across this pH range, which is characteristic of neutral/alkaline cellulases, is unexpected and therefore not obvious to one of ordinary skill.

Applicants respectfully assert their position that industrially useful neutral and/or alkaline activity is clearly not inherent to fungal cellulases as a class, but is in fact extremely rare, and thus one would not have had an expectation of success in attempting to employ a *Chrysosporium* cellulase in neutral or alkaline compositions.

The combination of Parslow and Janeckova does not make obvious the claimed invention for the reasons that the prior art and what was commonly known at the time the application was filed taught away from the claimed disclosure, unexpected and surprising results obtained by the present invention, and the lack of success by others. Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 2-4, 6-65 and 80-83 in view of the aforementioned remarks.

CONCLUSION

Based on the foregoing amendments and remarks, the applicants respectfully request reconsideration and withdrawal of the pending rejections and allowance of this application. The applicants respectfully submit that the instant application is in condition for allowance. Entry of the amendment and an action passing this case to issue is therefore respectfully requested. In the event that a telephone conference would facilitate examination of

this application in any way, the Examiner is invited to contact the undersigned at the number provided. Favorable action by the Examiner is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 3123-4000US2.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 3123-4000US2.

Respectfully submitted,
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Dated: September 18, 2008 By: _____
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